PREPACKAGING
Fruits and Vegetables by Cooperatives

BY OSCAR R. LeBEAU

One part of a Study made under the Research and Marketing Act Project, "Minimizing Waste and Increasing the Salability with New Processing and Packaging Techniques."

COOPERATIVE RESEARCH AND SERVICE DIVISION
FARM CREDIT ADMINISTRATION
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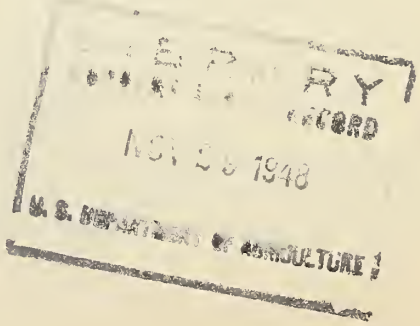

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SUMMARY AND CONCLUSIONS

Selling fruits and vegetables in consumer-size packages has become increasingly common since self-help super markets came to every neighborhood shopping center. Fruit and vegetable cooperatives have naturally stepped into this field of modern merchandising to protect and increase the market for their growers' products.

To find what cooperatives have been doing in this field, the Cooperative Research and Service Division of the Farm Credit Administration recently made a study as one part of a larger project being conducted under the Research and Marketing Act of 1946. Many of the findings have industry-wide significance - particularly the replies giving in considerable detail the difficulties these cooperatives have met in keeping down costs, finding satisfactory containers, and other similar problems. In outlining these problems, the cooperatives accompanied them with a number of suggested research problems that they and others in the field might attack.

The study itself is based on a questionnaire to which 149 cooperatives replied. Information on costs and methods used will be obtained later.

PRESENT STATUS

The replies showed that fruit and vegetable cooperatives interested in prepackaging their produce in consumer-size units are gradually increasing in number - advancing more in this field during the last 2 years than during any previous period. Thirty percent of those replying - 44 in number - had done some prepackaging at the shipping point.

Not all the associations have found prepackaging profitable, however. About one out of six had discontinued it after a trial period, giving high labor and container costs as the most frequent causes.

About 20 associations indicated they were ready to undertake prepackaging if prospective returns justify the anticipated costs. Several already doing prepackaging plan to expand their operations and to add new commodities.

COMMODITIES PREPACKAGED

Among the items most frequently prepackaged by the cooperatives are citrus fruits, apples and white potatoes - the latter leading the pack. Most cooperatives handled only a small proportion of their sales in this manner.

AMOUNT AND TYPE OF EQUIPMENT

Most of the prepackaging to date has been done with a minimum of mechanical equipment. Associations marketing white potatoes are among the best equipped for prepackaging. Other commodity associations are

gradually adding modernized equipment to cut hand labor and speed up the process. Some of the types of equipment being added are grading, washing, wrapping, tying, and stapling machines, and conveyors.

PRINCIPAL OUTLETS FOR PREPACKAGED COMMODITIES

Listed in the order of their importance, the principal outlets for prepackaged commodities were as follows: National chain stores; wholesalers and jobbers; local chain stores; independent retailers; institutions; hotels and restaurants. Chain stores and wholesalers who buy by car or truck-lots offer the chief outlets for prepackaged produce.

SALES TO PREPACKAGERS AT TERMINAL MARKETS

In addition to the prepackaging done at shipping point, more than a third of the cooperatives replying affirmatively had sold produce to others for prepackaging at terminal markets. Ranked in order of importance, the chief types of buyers for terminal market packing have been national chain stores, local chain stores, wholesalers, repackers, and retailers.

Terminal market prepackagers frequently concentrate on merchandising one or more items such as apples, oranges, limes, celery, potatoes, spinach and tomatoes for distribution in local stores. This type of prepackaging is particularly well adapted to such perishables as spinach and tomatoes.

PRINCIPAL ADVANTAGES OF PREPACKAGING

Fruit and vegetable cooperatives currently active in prepackaging stressed the following advantages: It increases the quantity sold per consumer, facilitates retailing, permits brand identification and advertising, makes a cleaner and neater display, increases the shelf life of produce, reduces waste, and makes for economical handling.

PRINCIPAL PROBLEMS AND SUGGESTED RESEARCH

Packaging fruits and vegetables in consumer-size units gives rise to many problems. The difficulties listed by cooperatives are grouped under the following general headings: Problems related to containers, such as cost, size and type, visibility, durability, and satisfactory protection in transit; reducing labor costs; expanding consumer acceptance; insuring high quality pack; increasing marketing and transportation efficiency; improving prepackaging equipment; and interesting membership in its desirability.

Each of these suggests several research studies that need to be made. If prepackaging is to obtain its maximum success, it is important to find satisfactory answers to these and similar questions. Moderate sums spent in appropriate research now can save both the industry and consumer much money and grief in later years. Many of the problems presented in this report are being studied in other Research and Marketing Act projects.

PREPACKAGING FRUITS AND VEGETABLES BY COOPERATIVES

By

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The rapid growth of self-service stores during recent years has caused the fruit and vegetable industry to give increased attention to prepackaging fresh produce in consumer-size units.

Giant super markets have made it possible for busy housewives to select quickly most of their groceries from a wide array of prepackaged, preweighed, and prepriced items. The chief exceptions or bottlenecks to this speed-up in handling have been fresh fruits and vegetables and meats.

Quite naturally, grower and shipper cooperatives in the fruit and vegetable field are interested in seeing the fresh produce departments of the super markets grow and prosper. Making use of modern marketing developments such as prepackaging is one of the most promising means for maintaining satisfactory outlets and opening up new ones for their products.

At present two methods of prepackaging are used - the first, to cut, trim, and package right at the shipping point, and the other, to do the prepackaging job at the terminal market. In either case, the product goes to the retail store and on to the consumer in handy-sized and attractive packages. The product in the consumer-size containers has been trimmed of waste, cleaned in most cases, and is practically ready for table use.

Prepackaging made its greatest growth just before and after World War II. Shortages in labor and container supplies hindered its development during this war. Most of the growth that did occur during the period came in the citrus industry, which put much more of its fruit in mesh bags.

Potatoes, apples, grapes, and blueberries were the principal fruit and vegetable items prepackaged by cooperatives before 1935. Among the earliest firms to market potatoes in consumer-size bags was the Michigan Potato Growers Exchange, Cadillac, Michigan. It began this back in 1927. By 1947, this cooperative marketed 47 percent of its potatoes in 15-pound double walled paper bags.

NOTE: Grateful acknowledgment is extended the cooperatives for providing information upon which this report is based; to M. C. Gay and J. H. Heckman, Cooperative Research and Service Division, Farm Credit Administration, for their assistance in planning the study; and to Weldon Walker, Cooperative Research and Service Division, Farm Credit Administration for tabulating the data.

A Super Market display. *Shoppers could'nt miss seeing this impressive display of prepackaged produce. The plainly indicated price becons the housewife to "buy the bag."*

Among the first apple associations to experiment with prepackaging were the Inwood Fruit Growers Association of Inwood, W. Va. and the Apple Capital Association of Wenatchee, Wash. - the former beginning in 1926 and the latter in 1928. Both of these discontinued prepackaging after a trial period.

Departing from conventional packaging methods brings many problems and disappointments to prepackagers. For this reason the Farm Credit Administration has made a study of recent activities and experiences of leading farmer cooperatives that have been prepackaging. This is a project under the Research and Marketing Act of 1946 and part of a larger study, "Minimizing Waste and Increasing the Salability with New Processing and Packaging Techniques."

Since the problems of cooperative groups are representative of those of the fruit and vegetable industry as a whole, the study should be of industry-wide benefit.

PROCEDURE USED

In conducting this survey, the Farm Credit Administration sent a letter and questionnaire to approximately 230 fruit and vegetable cooperatives

throughout the United States about March 1, 1948. The list was gleaned from more than 900 grower cooperatives. FCA omitted small associations and those it knew were not prepackaging from the original mailing list. Also where a group of cooperatives were members of a marketing organization it contacted only the central office.

The initial 11-question schedule - sample attached at end of this report - was mailed to this selected group of cooperatives. A follow-up letter and duplicate schedule were sent to those who had not replied by the end of 4 weeks.

Altogether, replies were received from 149 associations or from 65 percent of the 230 canvassed.

PRESENT STATUS OF PREPACKAGING

The replies showed that by March, 1948, 44 cooperatives or 30 percent of those responding had some experience in prepackaging at the shipping point. Citrus, white potato, and apple associations led the list, accounting for 70 percent of those having prepackaging experience.

Other commodities handled in smaller quantities and shown in table 1 under heading "other" were celery, cranberries, onions, blueberries, grapes, dried peas, plums, rhubarb, and tomatoes.

About one-third of the fruit and vegetable cooperatives that reported prepackaging initiated the practice during the 2 postwar years, 1946 and 1947. Among the commodities represented in this latest expansion were apples, citrus, plums, rhubarb, dried peas, tomatoes, and white potatoes. The stepped-up progress of the last 2 years indicates that prepackaging has gained increased recognition among producers and shippers.

Citrus packing houses led the list of associations engaged in prepackaging.

Table 1. - *Number of cooperatives with prepackaging experience*

Commodity	Number of cooperatives prepackaging	Period prepackaging began				
		Prior to 1935	1935-40	1941-45	1946-47	Year not given
Citrus--------	13	-------	4	4	2	3
Potatoes------	9	3	2	2	1	1
Apples--------	9	2	1	-------	4	2
Other[1]--------	13	2	2	2	4	3
Total----	44	7	9	8	11	9

[1]Includes celery 3, cranberries 2, onions 2, blueberries 1, grapes 1, peas 1, plums 1, rhubarb 1, tomatoes 1.

Not all of the associations undertaking prepackaging have found it profitable. Sixteen percent of the fruit and vegetable cooperatives that reported experience in prepackaging had discontinued the practice at the time of the survey. Apple and celery organizations accounted for the largest number of discontinuances.

The most frequently listed cause for abandoning prepackaging was cost. Several associations reported that the prices obtained for the consumer-size packages were insufficient to compensate for the additional container and labor costs incurred. This is obviously one of the largest hurdles to be overcome.

The next most important cause for discontinuing prepackaging concerned the keeping qualities of the commodities so handled. Some had difficulty in getting their commodities marketed in fresh and crisp form. Others found it necessary to repack the produce at the destination to remove damaged items. Some cooperatives had difficulty in finding a container that would hold up in storage. Others found it hard to handle consumer-size packages with their regular carlot business or to follow through with year-round sales.

Several reported that their prepackaging efforts had been premature when tried 10 years ago. Some of these expect to try it again under more favorable circumstances.

Of the 110 cooperatives not engaged in prepackaging in 1947 that replied to the questionnaire, 20 indicated their plans for the next 2 years. Seven of these were planning to undertake prepackaging soon. An equal number reported that they were disinterested and 6 were undecided. Included in the affirmative group were several who were planning to re-enter the packaging field. For example, one vegetable cooperative reported "We intend to experiment again with cauliflower. We believe it a good product to prepackage due to so much waste in the present method of shipment." Among the cooperatives that were planning to prepackage for the first time were those packing apples, grapes, peaches, and spinach.

The associations which expressed themselves as disinterested in prepackaging mentioned the increased expense and labor involved. One added, "Our sales office advises against prepackaging until more research has been done."

Typical of the responses of those undecided was that of the manager who said: "If and when it appears to our advantage to prepackage we will make the change; at present it is of no advantage to us."

Several associations now prepackaging volunteered that they were planning to expand their packing and storage facilities and to add new commodities. One of these commented: "We have 12 years' experience and we centainly have no intention of quitting now."

PROPORTION OF COMMODITES PREPACKAGED

Most of the cooperatives that prepackaged in 1947 handled only a part of their sales in consumer-size containers. Some were pursuing the matter more or less experimentally to keep abrest of competition. Others had been prepackaging for some time and were gradually expanding their output. Table 2 summarizes their replies on this point.

APPLES - Three-fourths of the associations prepackaging apples in 1947 handled less than 10 percent of their sales in this manner. Two New England associations packed 15 percent and 20 percent respectively in consumer-size packages. These led the list percentagewise.

CITRUS - Selling oranges and grapefruit in small mesh bags represented one of the most active fields of prepackaging in 1947. This was particularly true with the Florida and Texas citrus associations. Five-eighths of the cooperatives prepackaging oranges handled from 20 to

Table 2. - *Proportion of various commodities handled by these cooperatives which they prepackaged in 1947*

Commodity	Number of associations prepackaging	Percentage of associations prepackaging					
		Less than 10	10.0-19.9	10.0-39.9	40.0-59.9	60.0-79.9	80.0-100
Apples	8	75	13	12	-------	-------	-------
Citrus:							
Oranges	11	18	18	64	-------	-------	-------
Grapefruit	6	67	33	------	-------	-------	-------
Limes	1	------	------	100	-------	-------	-------
Potatoes	8	25	13	12	13	12	25
Onions	2	100	------	------	-------	-------	-------
Cranberries	2	------	50	------	50	-------	-------
Other	5	60	------	------	-------	40	-------
Total or average	[1]43	44	16	23	5	7	5

[1]Includes only those responding to question.

40 percent of their sales in this manner. One large citrus exchange, for example, packed 37 percent of its oranges and 11 percent of its grapefruit in small mesh bags. It sold the majority of these without the use of a master container, or an outer box holding 8 or 10 bags. A leading lime association packed 28 percent of its 1947 sales in cellophane covered trays.

WHITE POTATOES - Potatoes led the list of major commodities in the number of cooperatives that prepackaged 40 percent or better of their sales. Two northeastern cooperatives reported selling more than 80 percent of their 1947 volume in 10 and 15-pound paper bags.

ONIONS - Prepackaging onions at the shipping point is still negligible as evidenced by the fact that none of the cooperatives replying sold more than 2 percent of their 1947 volume in 10-pound mesh bags.

CRANBERRIES - One large cranberry exchange prepackaged 40 percent while another prepackaged 10 percent of its 1947 crop. The trend toward 16-ounce consumer bags is definitely upward for this commodity.

OTHER - One grape association and a leading blueberry association each reported prepackaging better than 80 percent of its sales in 1947.

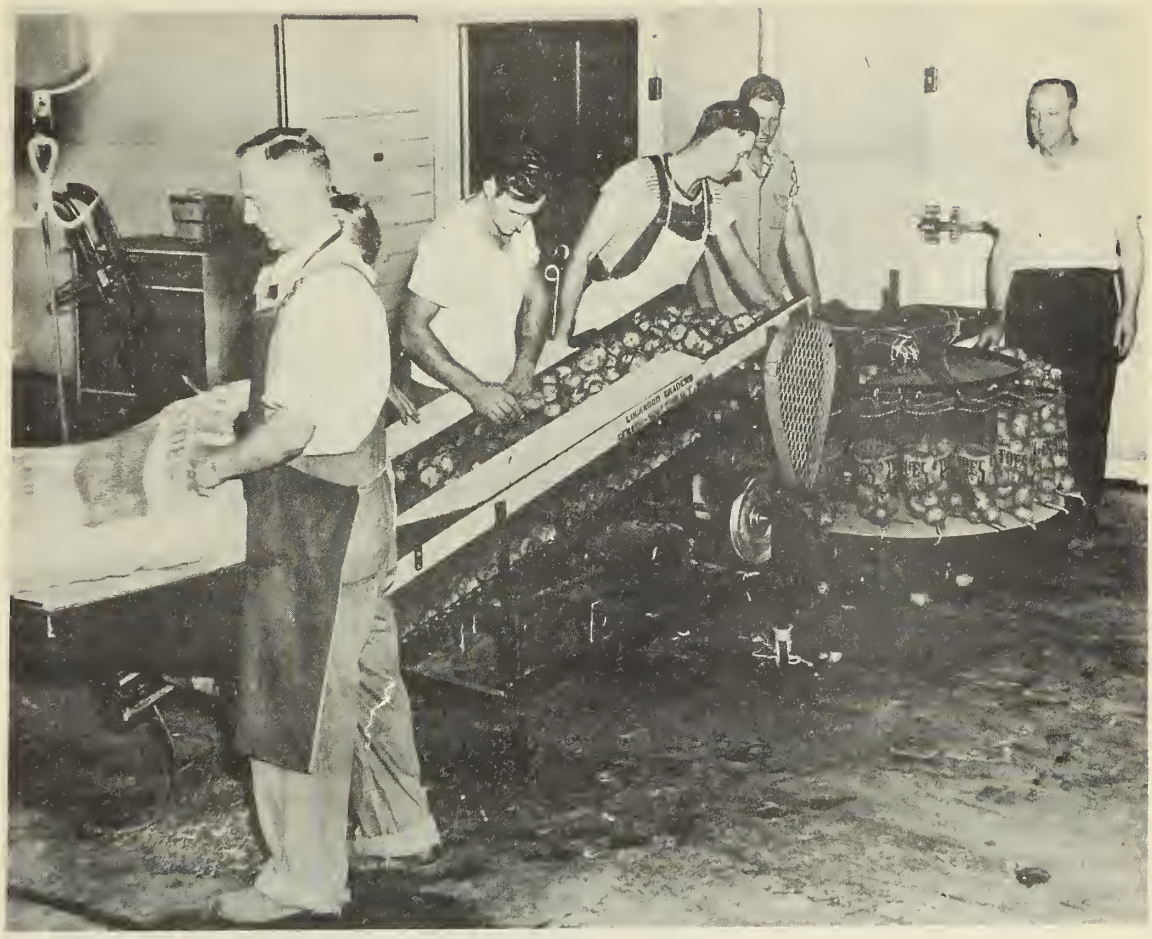
AMOUNT AND TYPE OF EQUIPMENT USED

Most of the prepackaging attempted by cooperatives to date has been done without the aid of additional equipment.

Table 3 shows that only 36 percent of the cooperatives prepackaging had made an investment in additional space or equipment. Half of these had invested less than $3,000 in such improvements. A limited number had bought substantial additional equipment. One large cranberry exchange had spent $30,000 for this purpose.

Table 3. - *Proportion of cooperatives active in prepackaging that had made additional investments in equipment and buildings 1948*

Commodity	Number prepackaging	Had made additional investment in equipment and buildings	
		Number	Percent
Apples	9	2	22
Citrus	13	3	23
Potatoes	9	7	78
Other	13	4	31
Total	44	16	36



White potato associations are among the best equipped for prepackaging. Here this co-op is packing potatoes in 10-lb. open bags.

Potato cooperatives led in the proportion of associations that had installed additional equipment - 78 percent. The number of citrus packing houses installing overhead conveyors and bagging equipment has also increased substantially in recent years.

Among the most common types of equipment installed by associations engaged in prepackaging were grading, washing, wrapping, tying and stapling machines, and conveyors. The use of such labor-saving devices is helpful in reducing the per unit cost. For example, one citrus association manager in Texas estimated that the new overhead conveyor installed in his packing shed recently will eliminate enough hand labor to pay for the conveyor within 2 years.

PRINCIPAL OUTLETS FOR PREPACKAGED ITEMS

OUTLETS FOR SHIPPING POINT PREPACKAGING - Eash association was asked to number in order of importance the principal types of buyers for the commodities it prepackaged in 1947. Table 4 summarizes their responses.

Table 4. - *Principal types of buyers of prepackaged fruits and vegetables*

Commodity	Weighted responses[1]	Weighted percentage of type of buyer mentioned as important						
		National chain stores	Local chain stores	Wholesalers & jobbers	Retailers	Hotels & restaurants	Institutions	Total
Apples------	31	39	36	13	6	3	3	100
Citrus------	63	49	26	22	3	-------	-------	100
Potatoes----	38	42	13	26	13	-------	6	100
Others------	40	30	18	42	10	-------	-------	100
Total or average-	172	41	23	26	7	1	2	100

[1]Weighted by assigning a value of 3, 2, and 1, respectively, to the type of buyer listed as 1st, 2d, and 3d or lower in importance.

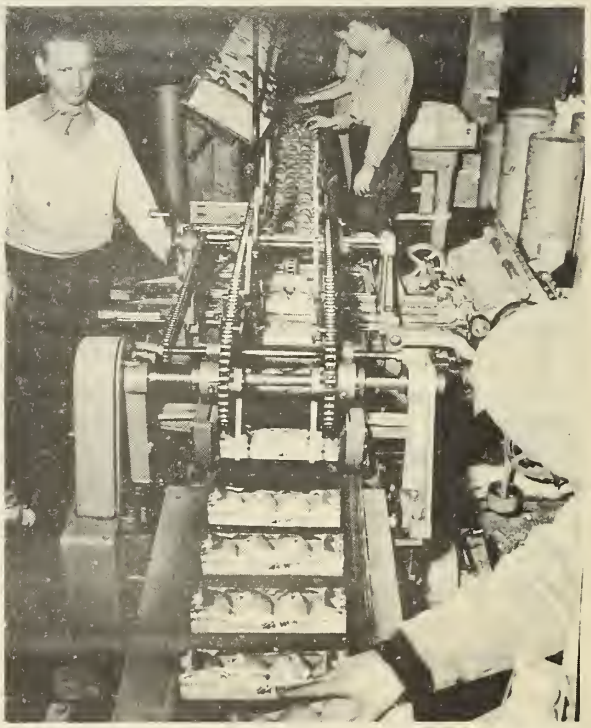
Of the 6 types of buyers listed, national chain stores afforded the largest outlets. Wholesalers and jobbers were next in importance. Retailers accounted for a relatively small percentage, while direct purchase by hotels, restaurants, and other institutions were negligible.

Wholesalers and jobbers played a larger role in the distribution of prepackaged citrus and other fruits and vegetables than they did with apples and potatoes. The prepackaged commodity most frequently purchased directly by retailers was white potatoes.

PREPACKAGERS AT TERMINAL MARKETS - More than a third of the responding cooperatives that had engaged in prepackaging at shipping point had also sold produce to others for prepackaging at terminal markets. This type of prepackaging is particularly well adapted for such perishables as spinach and tomatoes.

National chain stores accounted for 30 percent of the replies listed in table 5. Local chains ranked second in frequency, while wholesalers and repackers each accounted for 20 percent. National and local chains were reported prepackaging varied quantities of apples, oranges, limes, celery, potatoes and tomatoes for distribution to local stores.

Commodities prepackaged by wholesalers and jobbers at terminal markets included oranges, celery,



Prepackaging tomatoes in northern terminal markets. *Because of the uneven ripening of green wrapped tomatoes, repacking has grown to be a substantial winter industry.*

Table 5. - *Commodities prepackaged at terminal market by type of buyer*

Commodity	Number of co-ops selling for pre-packaging	Type of buyer doing prepackaging					
		National chain stores	Local chain stores	Whole-saler and jobber	Repacker	Retailer	Total
		Percentage					
Apples--------	6	50	33	------	--------	17	100
Citrus--------	6	33	33	17	17	--------	100
Potatoes------	8	25	25	25	13	12	100
Other---------	[1]10	20	10	30	40	--------	100
Total----	30	30	23	20	20	7	100

[1]Includes celery 4, tomatoes 4, and dry peas 2.

potatoes, dried peas, and tomatoes. Repackers or specialized jobbers frequently concentrated on prepackaging one or more of these commodities in consumer-size units. Except for a minor volume of apples and white potatoes, retailers did little prepackaging themselves.

PRINCIPAL ADVANTAGES OF PREPACKAGING

When asked what they considered to be the principal advantage of prepackaging, the responding cooperatives emphasized greater volume sales. Prepackaging also facilitates retailing, permits brand identification, makes a cleaner and neater display, increases shelf life of produce, and makes for more economical handling. Chart 1 indicates the relative frequency with which they mentioned these advantages. Each advantage is discussed separately below.

INCREASES QUANTITY SOLD PER CONSUMER - Prepackaging tends to increase the quantity of a fruit or a vegetable that the individual purchaser buys at one time. This is particularly true if the prepackaged item is favorably priced. For example, a housewife may decide to purchase a 15-pound sack of potatoes if she thinks she is making a good buy. Having purchased the larger quantity she is likely to use potatoes more liberally in planning her menus. This generally leads to a substantial increase in the total volume consumed. The suggested recipes some cooperatives give with the package offer an additional inducement for her to use the item more frequently.

MAKES BETTER RETAILING - Prepackaging converts the commodity into a self-service item. It speeds selecting and purchasing by busy consumers. The fact that the item is prepackaged, preweighed, and prepriced lessens the number of sales clerks these stores require and makes shopping easier and speedier. Since the packages in a given lot are identical in appearance and quality, the retailer can generally expect to sell the entire lot. This simplifies the computation of markups and

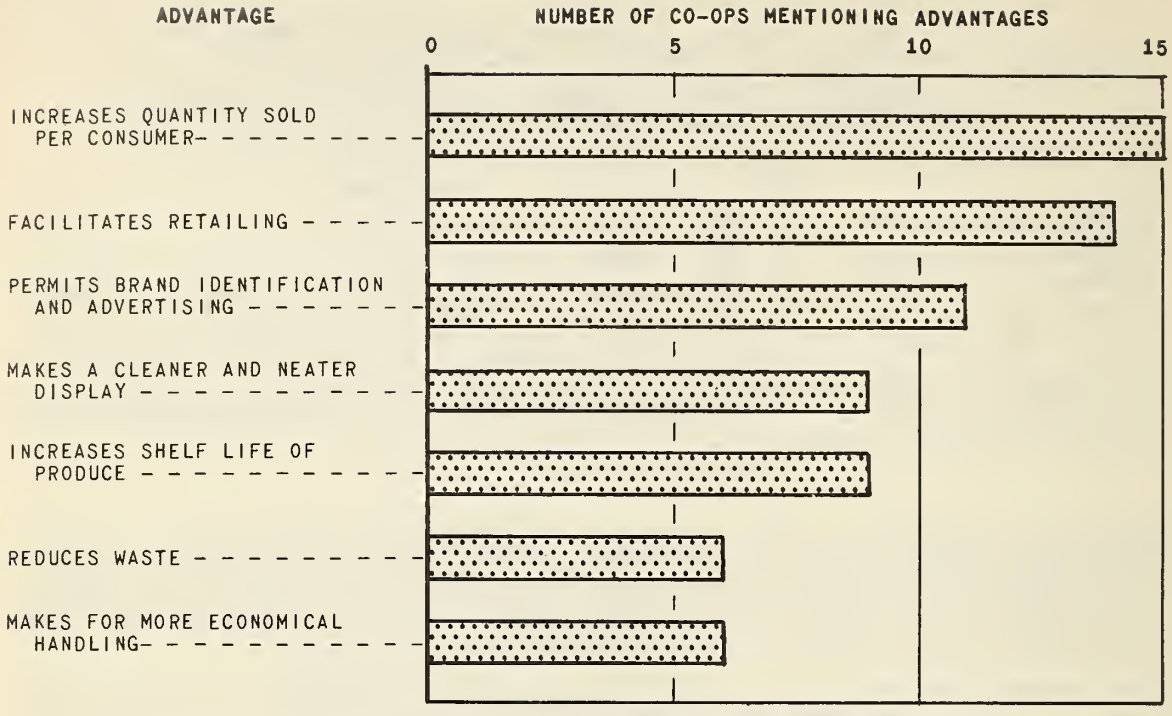


Chart 1. - *Principal advantages of prepackaging*

profits, as there is less uncertainty regarding the amount that needs to be allowed for waste, shrinkage, and unsaleable product.

Prepackaging also eliminates the cost of retail counter bags and spares the customer annoying delays at crowded check-out counters. It gives fruits and vegetables the advantages enjoyed by other packaged groceries.

PERMITS BRAND IDENTIFICATION AND ADVERTISING - Brand identification is an important aspect of modern merchandising. Heretofore the large fruit and vegetable containers bearing such brands have generally gotten no farther than the retail grocery store. Prepackaging makes it possible for these brand names to accompany the produce right into the consumer's kitchen. Higher quality products lead to repeat sales. Brand identification enables the housewife to make her purchases with greater confidence. Moreover, each package becomes in a sense an advertisement. Reputable packers are proud of their brand names and count them among their most valued assets.

MAKES A CLEANER AND NEATER DISPLAY - Neatly packaged produce has a greater eye appeal and display advantage. Many report that consumer-size packages have more sales appeal. One of the major factors contributing to the greater sales appeal is the sanitary protection provided by prepackaging. Human hands and street dust are in less frequent contact with prepackaged commodities, a fact which leads to better health protection.

INCREASES SHELF LIFE OF PRODUCE - Prepackaging cuts down the rate of shrinkage and safeguards the produce from excessive pinching and rough handling. This prolongs the normal shelf life of fruits and vegetables in local stores. The closer grading that generally accompanies prepackaging assures the retailer better delivered quality and a corresponding longer life. Increased shelf life affords the distributor a better opportunity to move all of his commodity at a favorable margin.

REDUCES WASTE - Marketing fruits and vegetables in consumer-size packages not only increases their shelf life, but it also reduces substantially the quantity wasted on account of rough handling and through rejection by consumers. Retailers normally incur considerable loss from the fact that rejections must be discarded or sold at greatly reduced prices. Included with this expense are the container, freight, and other handling charges that have to be borne by the portion of the commodity actually marketed.

MAKES FOR MORE ECONOMICAL HANDLING - Prepackaging at shipping point generally makes for more economical handling by distributors. The preparing, grading, and packing can be done centrally, thus cutting down on the amount of hand labor and other costs involved. Also it means that the freight and container costs can be saved on the portion of the commodity that is discarded at shipping point. Moreover, packing house refuse can sometimes be diverted to profitable byproduct usage.

PRINCIPAL PROBLEMS AND SUGGESTED RESEARCH

Prepackaging fruits and vegetables presents many challenging problems that must be met and overcome before some of the advantages can be realized. This is evident from the many problems listed by the cooperatives. The problems enumerated by them may be grouped under 7 headings. Many of the problems presented in this report are being studied in other Research and Marketing Act projects.

Each of the problems as shown in Chart 2 offers a challenging field for additional research. Thus in summarizing each set of comments a paragraph outlining "suggested research" immediately follows. This includes the questions raised by the cooperatives replying plus several that have been supplied from other sources to complete the picture.

PROBLEMS RELATED TO CONTAINERS - Half the cooperatives prepackaging reported container problems. These generally involved such matters as costs, size and type, visibility, durability, and satisfactory protection in transit - all discussed in the following paragraphs.

Container costs - Prepackers are ever conscious of the additional expenditure required for unit packages and for the master containers used in handling and shipping them. Many have found buyers reluctant to absorb these additional material costs. For prepackaging to have a fair chance ways must be found for holding container costs to a moderate level.

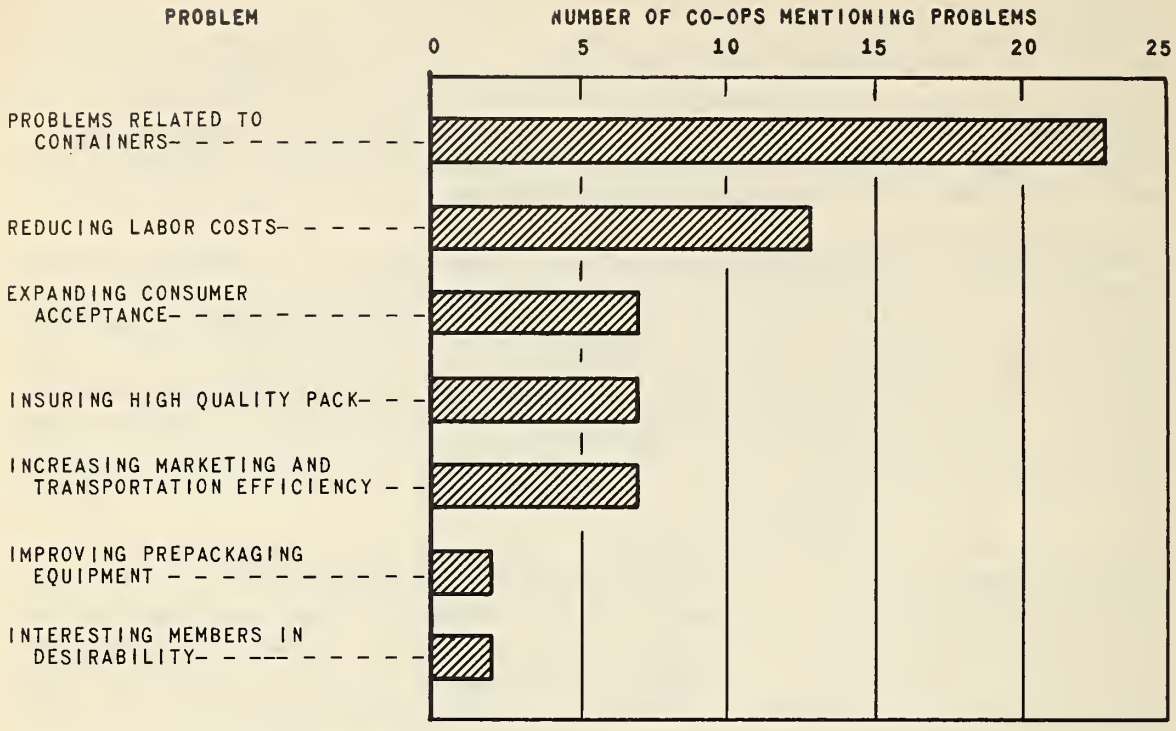


Chart 2. - *Principal problems to be overcome*

Suggested research - What is the most economical container for a given commodity? What is the relative cost of different container materials? How can the assembling and packing costs best be held to a minimum? How can these additional container costs best be absorbed?

Container size and type - Determining the most appropriate and economical consumer-size package has presented a real problem to prepackaging. Sizing the commodity to fit the selected container is likewise a problem. Too many different size containers slow up the packaging operation and increase the handling costs.

Suggested research - What size and type of container is best suited for the commodity? Is more than one size of container desirable? How can the most appropriate sizes be standardized? To what multiple or second-hand usage can the used container be put?

Container visibility - Several cooperatives complained that some types of transparent films had a tendency to fog in the presence of certain plant gasses. This mars the visibility and attractiveness of the affected package.

Suggested research - How can the fogging of film due to respiratory gasses be overcome? How essential is it that there be good visibility of the product packaged? Which transparent films provide the best

visibility? How prevent undesirable bleaching of dried peas sacked in transparent film? How can the greening of potatoes exposed to light be prevented?

Container durability - Successful marketing of a commodity requires that the package be sufficiently durable to reach the consumer in a neat and unbroken condition. Failure of seams, breakage of paper bags, cracking of transparent films due to temperature changes, and deterioration of containers under cold storage conditions were among the problems listed.

Suggested research - Which transparent films will withstand normal temperature changes without breaking? How prevent deterioration of consumer unit and master containers under cold storage conditions? How can the breakage of containers and the failure of seams be reduced to a minimum?

Master containers - One of the chief needs of many prepackagers is the development of an economical outer container to make handling easier and to provide adequate protection in transit and storage. For example, by inserting 5 small 10-lb. bags of white potatoes in a strong master bag, handling and warehousing costs are reduced materially. This outer bag protects the small units from becoming soiled and preserves their attractiveness and salability. In addition to strong paper sacks, master containers may consist of especially designed carton boxes, wire bound wooden crates, and boxes of every size and description. Their use is especially beneficial in reducing breakage of delicate smaller packages. Breakage of even a small number of retail packages hinders selling them and lowers the profit.

Prepackaged apples. *No "pig in a poke" here! These attractive consumer-size units enable the housewife to see what she's buying.*

Suggested research - For which commodities is a master outer container essential to prevent bruising? To facilitate handling? What is the most economical type of master container? Which fruits and vegetables require aerated containers? How can master containers be made to withstand humidity and temperature changes? What alternatives, if any, are there to the use of master containers?

REDUCING LABOR COSTS - Labor cost is one of the principal problems vexing prepackagers. A considerable number of cooperatives have undertaken prepackaging with a minimum of additional equipment. The large amount of hand labor thus incurred adds substantially tc the packaging costs. Double and triple handling of numerous small units also increases the amount of work required. Hand methods may suffice temporarily where only small or experimental packs are involved, but high labor rates generally make it desirable that labor-saving equipment be installed for volume production. Only by holding the per unit cost of packing and handling to a reasonable figure can wholesale prices for prepackaged fruits and vegetables compete successfully with those delivered in the larger conventional type containers. This may require the installation of bag-filling equipment, automatic tyers, overhead conveyors, and other labor-saving equipment. One associacion packaging white potatoes referred to this problem, thus: "Perhaps our greatest problem ... is to reduce the cost of packaging. During the past year our packers refused to put up 10-lb. bags at less than 65 cents premium per hundredweight over 100-lb. bags of like quality and size. We feel that it will be necessary to reduce that premium to 50 cents per hundredweight. In order to do that, we must have more efficient machinery in order to cut labor cost."

Suggested research - How can labor efficiency be increased? What labor short cuts if any can be effected? To what extent can machinery be installed to reduce the amount of hand labor? How can bottlenecks in the packaging line be eliminated?

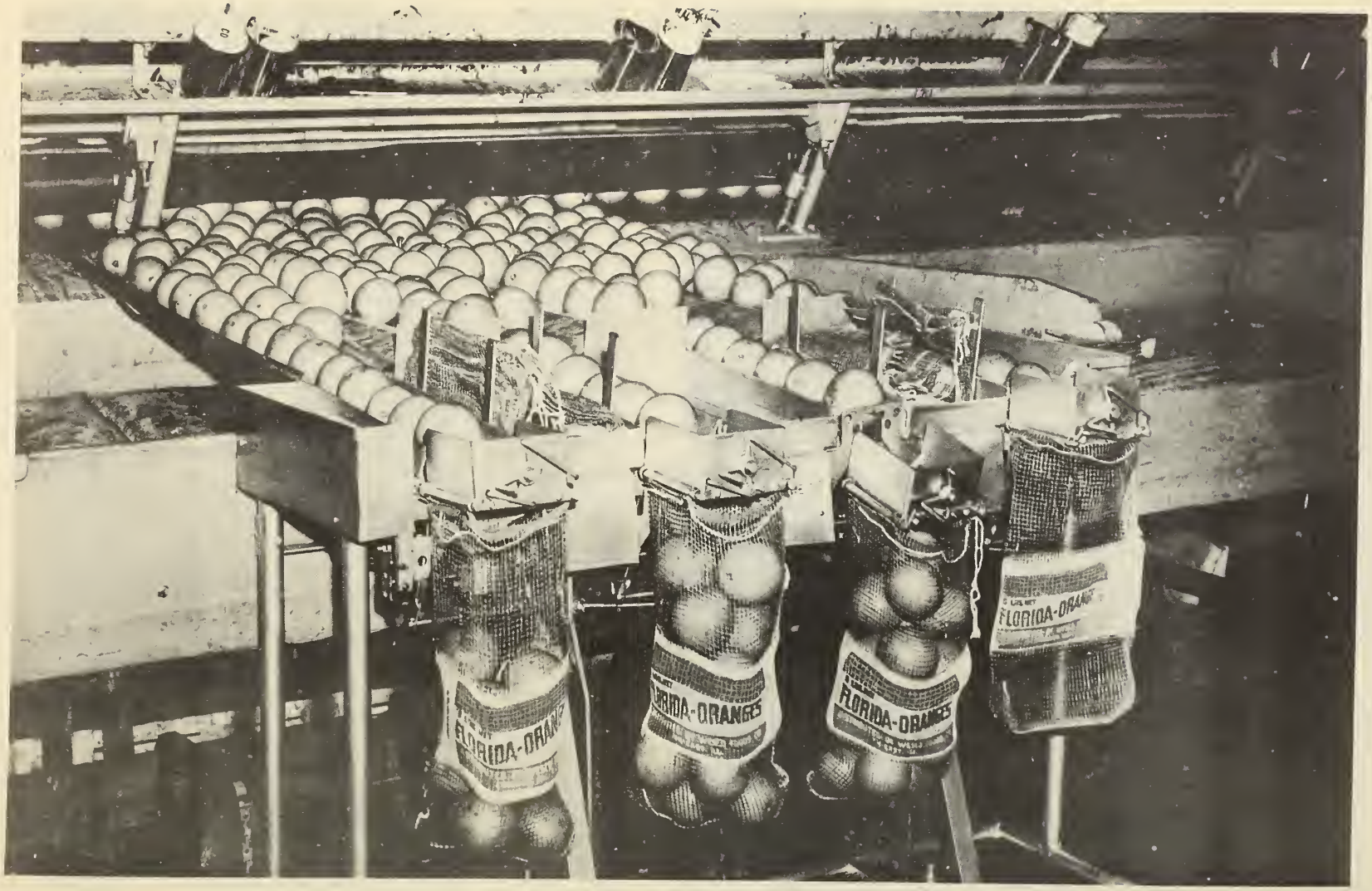
EXPANDING CONSUMER ACCEPTANCE - Consumers need to be firmly convinced of the advantage of prepackaged produce. This is necessary to gain public acceptance of the new type containers at a price level that will compensate growers and shippers for the increased labor and container costs. For the total consumption to be increased substantially, it is essential that consumer-size packages appeal to middle income groups as well as to higher income families. Thus the selling price must compare favorably with that of unpackaged items. Prepackers must never lose sight of the fact that the satisfied customer is their best advertisement. Contrariwise, the surest way of giving prepackaging a black eye is to sell inferior produce in a blind container.

Suggested research - What types containers do consumers prefer? What size consumer package is best adapted to the average family's needs? What is the effect of commodity visibility on retail sales? What advertising benefits come from brand identification? Where can

Prepackaged lemons. *Thirty 3-lb. bags are packed in master containers for safe shipments to market. Note the efficient over-head conveyor.*

prepackaging best be done to insure the consumer a satisfactory product? What is the effect on sales of having a complete line of prepackaged items as compared to having only a few such items?

INSURING HIGH QUALITY PACK - No housewife is likely to become a regular customer of prepackaged fruits and vegetables unless she is satisfied with the quality of the product purchased. Growers and shippers must be convinced of the importance of marketing only good quality produce. The respective commodities should be graded properly and sized before placing them in consumer-size packages. While most prepackagers have some perception of the importance of a high quality pack, actual performance may fall short of the desired goal. For example, one white potato co-op manager reported "Our thought has been that due to the higher packing costs, only the best potatoes should be put in 10-lb. bags. In practice, however, much the reverse has been true. Potatoes which were difficult to move in 100-lb. bags were put in the small-sized bags. A large volume of utility grade and culls were also packed in consumer bags. This practice without a doubt has tended to reduce or in some cases kill consumer demand for the package."



Labor saving equipment. *New type packages call for new type equipment. Without the proper facilities it is doubtful whether prepackaging labor costs can be held down sufficiently to permit profitable operation.*

Will Mrs.. Housewife buy it at today's prices? That's the acid test that determines the success or failure of any prepackaged item.

A somewhat similar situation exists with regard to the packing of oranges in small mesh bags. While it must be common knowledge that housewives like to be able to obtain the same quality oranges in mesh bags as are offered in the bin, the tendency of many packers has been to put chiefly the small size fruit in small bags. This particularly is true in Texas where orange production is a relatively small part of the total citrus production and where relatively few oranges are diverted to juice plants. As a result, small-size and inferior quality oranges are placed in small mesh bags. The bagged fruit is then sold to truckers who distribute it as fresh fruit throughout Texas and nearby States. Thus, while Texas produces many oranges, good quality oranges are difficult to obtain in many markets of that State. This most certainly dampens the consumer's enthusiasm for bagged fruit. It has an adverse effect also on overall consumption and the total quantity of oranges that can be marketed successfully.

Where practical, the prepackaged fruits and vegetables should be reinspected periodically to protect the consumer from taking home a deteriorated product. When necessary the packages should be repacked or reconditioned before offering them to the ultimate consumer.

Visibility of the prepackaged item is generally desirable. It gives the buyer added assurance that she is making a wise buy. Few housewives will allow themselves to be "gypped" a second time. The alternative is to develop a good reputation for a brand name and to stand firmly by it.

Suggested research - How can prepackagers best be persuaded to maintain rigid quality standards? What grading inspection service should be set up to encourage high standards? How prevent discoloration of certain commodities packaged in transparent containers? What can be done to reduce shrinking and decay of prepackaged merchandise? Where repacking is necessary, how can it be accomplished most economically?

INCREASING MARKETING AND TRANSPORTATION EFFICIENCY - Prepackaged fruits and vegetables must be handled with the utmost care and dispatch. This involves numerous adjustments in the conventional marketing procedure. Shippers making these necessary adjustments are the ones most likely to succeed at prepackaging. How to hold transportation, brokerage, and other distribution costs to reasonable levels were among the foremost

problems listed in the mail survey. Coupled with these is the desirability of assuring speedy delivery to a widespread number of markets. With some commodities it may require the development of an inexpensive master container that will reduce handling costs and provide suitable protection in transit. For example, oranges shipped in mesh bags without the protection of a master container are likely to look bruised and unattractive by the time they reach distant retail outlets. At the same time it is understandable while shippers have hesitated to spend about 40 cents additional for a master container which in hard cash is equivalent to adding about 4 cents to the marketing cost of each 8-lb. bag.

Suggested research - How can prepackaging and handling costs be held to a minimum? What distribution costs, if any, can be eliminated? What are the comparable transportation charges for regular and prepackaged merchandise? What improvements can be made in refrigerator cars and trucks to facilitate the shipment of prepackaged produce? How can retailers be encouraged to handle and display prepackaged fruits and vegetables most effectively?

IMPROVING PREPACKAGING EQUIPMENT - Prepackagers are generally agreed that if consumer-size packages are to compete successfully with conventional marketing ways must be found to reduce the large amount of hand labor normally required. Thus the development of appropriate conveyors, vegetable washers, graders, packing machinery, closing machines, and other mechanical equipment offers a wide field for helpful research.

A few of the larger operators are already utilizing substantial labor-saving equipment. Typical is the report from one of the potato cooperatives: "We must continue to perfect our packaging methods in order to bring prices of consumer packages down to a near level of commodities packed in larger units. Our prepackaging in the past has been antiquated with most of it being done by combination machine-hand method. We have been doing some research and development work at substantial cost in an effort to perfect an automatic weighing and packaging machine."

Other associations are planning to install special packaging machinery in the near future. Many hold that efficient prepackaging equipment is the first step to economical large-scale output.

Suggested research - What kinds and types of equipment are best adapted to make prepackaging easier and better. To what extent are packaging machinery firms already working on this problem? How can some of the present mechanized equipment be converted to do the specific job at hand? What new equipment needs to be developed to lower the per unit costs for prepackaging and handling?

INTERESTING MEMBERS - Before launching a prepackaging project, members of a cooperative should be sold on the wisdon of the venture. Several managers in this survey indicated that they had difficulty in interesting their members in the possibilities offered by prepackaging. This serves to indicate the importance of maintaining a sound membership relations program.

Unless a majority of the members are actively supporting the project, particularly by supplying high quality products, it is questionable whether it should be undertaken. This is especially true where the packaging is decentralized and where quality and size of the commodity prepackaged is not subject to strict supervision. For example, a large eastern potato cooperative manager wrote: "All our potatoes are prepackaged by the producer at the farm and are delivered by him directly to the stores - probably about 90% to chain stores. We receive the orders from the store managers ... and distribute them to our members. Then we collect the money and pay the grower. This is the most economical marketing system we know." Obviously the long-term success of such a venture depends on how well the individual members understand the importance of marketing a high quality product that results in repeat sales.

Prepackaging potatoes. *This Pennsylvania cooperative uses exceedingly simple equipment. Considerable hand labor is required to package these 15-lb. double-walled paper bags.*

Suggested research - How have the associations now prepackaging fruits and vegetables gained the support of their membership for the undertaking? What are the pitfalls to be guarded against when launching a prepackaging project?

UTILIZING REFUSE - As a result of selling only high grade produce in consumer-size packages, new and additional outlets need to be developed for the fruits and vegetables that do not meet the desired specifications. Where feasible a common practice is to divert this type of produce to juice plants and canneries.

Some off-grade or under-size white potatoes may be utilized for the production of useful byproducts such as flour, starch, and alcohol. Others are suitable for livestock feed, either in fresh or dried form. Citrus refuse, for example, is becoming increasingly important as a source of cattle feed. The Texsun Citrus Exchange at Weslaco, Tex., produces enormous quantities of dried citrus pulp and molasses each year from citrus refuse. Finally, all fruits and vegetables have fertilizer value.

In conventional marketing low grade produce has sometimes not been rejected until it has reached local retail stores where it must often be discarded at a loss to the retailer. Under such circumstances, the needless waste of containers, freight, and labor can be enormous.

A display of prepackaged fruits and vegetables. *Increased research and knowledge is necessary to determine whether is is economically profitable to pack some of the above items.*

Suggested research - What is the possibility of utilizing discarded produce as processed food? As a fuel? As raw feed for livestock? As dehydrated feed for livestock? What other byproduct usage can be discovered for such refuse?

Thus, while prepackaging still has numerous problems to solve, fruit and vegetable cooperatives are ironing many of these out gradually - partly through their experiences and those of others in the industry and partly through research findings of private and government agencies. Because much remains to be learned, this promises to be a challenging field for exploration in the years ahead.

Budget Bureau
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UNITED STATES DEPARTMENT OF AGRICULTURE
FARM CREDIT ADMINISTRATION
WASHINGTON 25, D. C.

SURVEY OF PREPACKAGING BY FRUIT AND VEGETABLE COOPERATIVES - 1947

To:

Kindly fill in the following data and return in the enclosed postage-free envelope.
Use reverse side if additional space is needed.

1. Has your cooperative ever prepackaged any fruits and vegetables in consumer sizes? Yes_____ No_____. If "yes", list items and year prepackaging was begun:_____

   If "no", kindly return questionnaire. Any comments you care to make will be appreciated.

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2. Have you ever discontinued prepackaging a commodity? Yes_____ No_____. If so, why?_____

3. Give the following summary regarding commodities you prepackaged in 1947.

Commodity	Proportion of Commodity Prepackaged	Size & Type of Consumer Container
_____	_____ %	_____
_____	_____	_____
_____	_____	_____

4. What container problems, if any, have you encountered in your prepackaging?_____

5. Is prepackaging done by hand_____ or by machinery_____ ? If by machinery, what additional investment have you made to enter the consumer packaging field?
   Buildings_____ Amount $_____
   Equipment_____ Amount $_____

6. Number in order of importance the principal types of buyers of the commodities you prepackaged in 1947: national chain stores ( ); local chain stores ( ); wholesalers and jobbers ( ); retailers ( ); hotels and restaurants ( ); institutions ( ); other ( ). If other, specify:_____

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7. In addition to any consumer packaging done at shipping point have you sold any produce to others for prepackaging at terminal markets? Yes_____ No_____. If so, list commodities:

   and check type of buyer performing prepackaging service; national chain store ( ); local chain store ( ); wholesaler and jobber ( ); repacker ( ); retailer ( ); other ( ). If other, specify:_____

8. If not doing any consumer packaging now, are you considering doing so any time within the next two years? Yes_____ No _____ Undecided _____ Explain:_____

9. What do you consider the principal advantages of consumer packaging?_____

10. What do you consider the principal problems to be overcome?_____

11. On what problems do you think further research might be helpful?_____

USE REVERSE SIDE FOR ADDITIONAL INFORMATION AND COMMENTS.

Data supplied by:_____ Title:_____